

# GOVT. HOLKAR (MODEL AUTONOMOUS) SCIENCE COLLEGE, INDORE



(An ISO 9001:2015 & ISO 14001:2015 Certified Institution)



## SSR DOCUMENT

2017-18 TO 2021-22

### CRITERION -7

**Institutional Values and Social Responsibilities**

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**Document Title:**  
**Carbon Footprint Report**

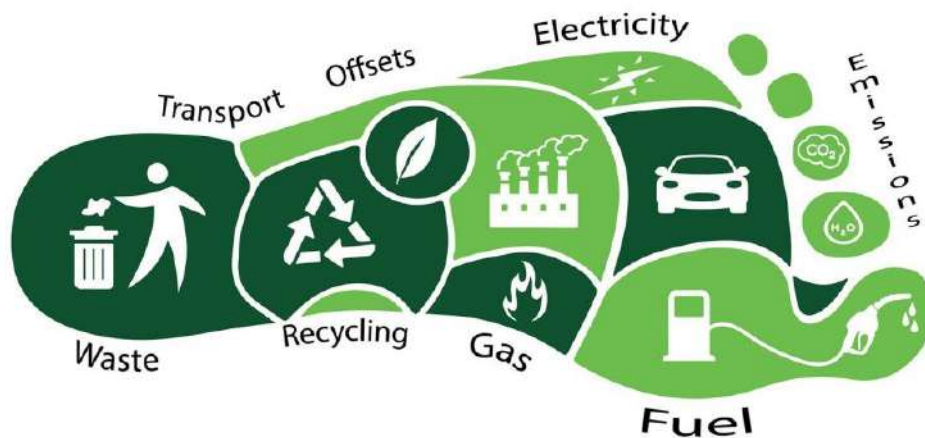
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# GOVT. HOLKAR(MODEL AUTONOMOUS) SCIENCE COLLEGE INDORE



## CARBON FOOTPRINT REPORT

Reporting Year 2020-21



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# 1 Executive Summary

## 1.1 ABOUT THE PROJECT

The term "Carbon Footprint" describes the possible climatic effects (Global Warming) of the Greenhouse Gases (GHG) released as a result of the operations of a business. Emissions of Carbon Understanding any educational institution's disclosure is crucial in order to identify its primary emission sources and implement the appropriate carbon reduction strategies. Nowadays Very few colleges currently report their carbon emissions. The college has created a model for other colleges by taking the initial steps to calculate its carbon impact. To complete this goal, the college has established a carbon reduction plan.

The college has estimated greenhouse gas emissions for the season 2020-21. The study identifies the college's primary emission sources at the moment and provides baseline information for establishing college-wide emission reduction goals for the upcoming season. The calculation of the college's footprint has been done using a number of acknowledged national and international criteria.

The project was completed in three stages:

- Planning,
- Data collection,
- CO2 estimation,

and followed by suggested improvement strategies. A core team made up of teachers and students from several departments was formed when the project was launched. To gather the necessary data, several site visits and in-person meetings with the departments were conducted. The study conducted in-depth research on the most recent emission components to calculate the footprint. Both data from the college, both qualitative and quantitative, were gathered. An online poll was created. The survey was administered to students, non-teaching staff, and teacher for a month.

Because of the effort and excitement put out by the whole institution, we dedicate the successful completion of this project to them. The project ran smoothly , thanks to collaboration from all departments.

Through this effort, Holkar College has disclosed its scope 1, 2, and 3 carbon emissions

The project's advantages will result in significant utility cost reductions across all on-campus operations, which will increase the college's financial and environmental sustainability.

## **1.2 OBJECTIVES OF THE PROJECT**

- Identify key emission sources of GHG at the campus
- Compute Scope 1, Scope 2 and Scope 3 emissions for operations carried out at Holkar college
- Analyze the results and provide cost-effective & efficient measures for reducing GHG emissions.

## **1.3 RELEVANCE**

The global temperature has grown due to the current climate change (global warming). Additionally, the year 2021-21 saw some of the most severe climatic extremes, such as terrible storms, floods, droughts, heat waves, etc., which resulted in significant loss and damage to both life and property.

According to India's Nationally Determined Contributions (NDCs), by 2030, its emission intensity per unit of GDP would be 33 to 35 percent lower than it was in 2005. Due to this, it is now necessary for several industries to disclose their carbon emissions so that proper action may be taken. By disclosing the emissions, they will be able to establish realistic goals for cutting carbon in the following years.

By informing society via research and producing qualified graduates, educational institutions have a significant impact on regional and national policymaking. It lays the foundation for instilling responsible viewpoints in the young minds that serve as effective innovation incubators, from which many sustainability ideas spring.

By calculating its carbon footprint, Holkar College will be better positioned to meet upcoming problems brought on by climate change. A wide variety of graduate, postgraduate, and other courses are offered at Holkar College, a pioneering College. As a result, it has a noteworthy position in terms of population, economic significance, and sociological impact.

Students, teachers, and other staff members will have the opportunity to comprehend the significance of global warming, GHG emissions, and carbon footprint with the aid of such initiatives. These initiatives will give students an understanding of important topics and hands-on experience, opening up employment options for them on the subject of climate change. The initiative will provide them with the ability to make fresh, original suggestions for lowering emissions across all campus operations. The college campus should prioritize carbon reductions since it will improve the environment, encourage financial savings, and spur competitiveness with other educational institutions.

## **2 BACKGROUND**

At the local, national, and international levels, global warming has recently emerged as one of the most important concerns facing society. The rise in global temperatures is the most immediate and evident result of global warming. One of the main contributors to global warming is GHG emissions. Quantifying the GHG emissions brought on by diverse human activities is an important first step towards emission reduction and understanding catastrophe risk.

As a measure of climate performance, Carbon Footprint (CF) identifies the main sources of GHG emissions as well as possible areas for improvement. It has been created as a tool to direct the necessary emission reductions and assurances that will make it easier to comprehend the risk of global warming at its earliest stage. Carbon Footprint is "a measurement of the total GHG emissions created directly and indirectly by an individual, an organization, an event, or a product and is represented as a carbon dioxide equivalent (CO<sub>2</sub>e)," according to Carbon Trust (2007). An organization's carbon footprint calculates the greenhouse gas (GHG) emissions from all of its operations, including the energy consumed for buildings, industrial

processes, fugitive emissions, and transportation. Along with evaluating the company's overall GHG impact, a CF analysis will give the business a thorough GHG inventory, enabling it to identify and set reduction goals from its main sources of emissions.

Many industries now evaluate their carbon footprint, including manufacturing, hospitality, hotels, educational institutions, the agricultural sector, the medical industry, and others.

The research is a first step in the process of reducing the college's emissions and developing a framework for environmental policies. It will provide an overall assessment of campus CO<sub>2</sub> emissions, assist in locating the main sources of emissions, and highlight potential areas for improvement.

### **3. STUDY AREA**

#### **3.1. ABOUT REPORTING ENTITY:**

Carbon Footprint was carried out at the campus of Holkar College spread over 32 acres of land in lush green surroundings with extensive play grounds and open spaces.

#### **3.2.REPORTING PERIOD:**

1 July 2030 to 30 June 2021 The emissions reported for season 2020-21 will be considered as a baseline to set emission reduction targets for upcoming FYs.

#### **3.3.SCOPE OF PROJECT:**

##### **a) Physical boundary -**

*Location of the building:* Holkar College, Bhavenkua , Indore-

*Description of areas excluded from GHG accounting:* The new academic block (non-operational) and the Girls Hostel (under construction) were not in the scope.

##### **b) Operational boundary –**

###### **Scope 1\_Direct GHG emissions from:**

- Combustion of fuels in stationary sources-diesel used in electricity generators
- Combustion of fuels in stationary sources – LPG consumption in canteen and Chemistry laboratories
- Fugitive emissions from Refrigeration/air-conditioning equipment –

## **Scope 2 Indirect emissions from:**

- Purchased electricity

## **Scope 3 Other Indirect GHG emissions from:**

- GHG emissions due to daily commuting of Teaching Staff, Non-Teaching Staff and Students to and from college
- GHG emissions due to paper consumption

## **4 DATA COLLECTION**

### **PRIMARY**

1. ONLINE SURVEY
2. ON SITE VISITS

### **SECONDARY**

- 1 INVOCES, RECORDS, MAINTENANCE

## **LIMITATIONS DISCLOSURES**

- In the absence of exact quantity of refrigerant load on installed air conditioners, refrigerators and water coolers, industry recommended values for capacity and type of equipment were considered
- . • The data used for computation of carbon footprint was as provided by the Institution. In case the data did not include travel related information for few employees and students, the same have been ignored
- . • The electricity units were taken from the actual electricity meter bills and the same is considered to be accurate.
- There could always be a calibration error in the system while the computation was made



<b>GHG ACCOUNTING ACTIVITY</b>	<b>ACTIVITY SUBSET</b>	<b>DATA COLLECTION SOURCES</b>	<b>UNITS</b>
Stationary Combustion	LPG Consumption in Canteen & Chemistry	Record Registers from the respective department	Kg of LPG/ yr.
Stationary Combustion	Diesel used in DG	Purchase Record Books	Liters of Diesel/ yr
Fugitive Emissions	Refrigerant used in Refrigerators & Air Conditioners	Invoices, Quotations, Equipment Photographs, On site Visits	Kg of Refrigerant/ year
Purchased Electricity	Units of electricity used during the FY	Monthly Electricity Bills	KWh / yr.
Employee Commuting	Distance travelled, Mode of Transport used	Online Survey	Distance travelled/ yr.
Students Commuting	Distance travelled, Mode of Transport used		Distance travelled/ yr.
Paper Consumption	Amount of paper (fresh & recycled) used	Data Shared by College Administration	Kg of Paper Consumption/ yr.

## 5. DATA ANALYSIS: CALCULATIONS AND RESULTS

With reference to the data provided by the college, the number of students, teaching staff and non-teaching staff considered for the project is:

- Students: 3106
- Teaching Staff: 156
- Non-teaching staff: 96

Table A summary of the estimation of Holkari College for the Reporting season 2020-21

	Scope 1			Scope2	Scope3			Total
	LPG	Diesel	Fugitive Emission	Purchased electricity	Teacher	Student	Paper Consumption	
	848	15296	1356	163582	58066	62145	25200	<b>326,493</b>

## **6 RECOMMENDATIONS AND SUGGESTIONS**

- Building of GHG Information Management System
- Set reduction targets
- Green events
- CF Disclosure
- Awarding and labelling Departments
- Eco suggestion box